



# Healthy Volusia Report

## Quadrants Matter!

Obtaining county specific health data is critical to monitoring disease and informing the Volusia County community of their health. The County Health Rankings report ranks the nation's counties by overall health outcomes using the length of life and quality of life measures of county residents ([www.countyhealthrankings.org](http://www.countyhealthrankings.org)). One Voice for Volusia provides a thorough compilation of demographic and health data annually in the Community Agenda Snapshot ([www.agendavf.org](http://www.agendavf.org)). The Florida Department of Health makes health trend data available for public access ([www.floridacharts.com](http://www.floridacharts.com)). These data are invaluable in helping to understand health outcomes at the county level and how Volusia compares to the state of Florida and the nation.

However, county level data does not allow identifying and understanding community health issues at the zip code, city or other sub-county levels. County level data tend to mask the trends in geographically and culturally diverse communities within the county. Infant death rates are generally higher in Volusia County African-American communities than other

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racial groups. Whites have a higher rate of breast cancer than African-Americans. The differential impact of disease on high risk communities is hidden when we do not assess disease at sub-county levels, and miss opportunities to attack the disease at the site where the



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the intervention can have its greatest impact.

Knowing where disease occurs and where disparities in the prevalence of disease exist will aid public health and health care providers to better address the needs of the populations they serve. The goal is to raise awareness of the impact of chronic disease and inform residents of their health as we strongly believe this to be the first step towards better health.

This is the first of a series of Healthy Volusia Reports which will describe and illustrate the prevalence of public health issues at the sub-county, county, state and national levels; feature articles by local health professionals discussing relevant emerging disease issues; and display maps of the geographic distribution of disease in Volusia County health quadrants, cities and zip codes.

These reports are tailored not only to raise awareness of Volusia's health issues throughout the community, but to also facilitate the assessment of health disparities among various groups and geographic communities. Policy makers and grant writers can use this report as supporting evidence for their policies and grant proposals. Educators can use the report as a tool to help students better understand the community's health. These reports provide the opportunity for health professionals and other stakeholders to publish emergent public health concerns and articles that may benefit our community.

We invite you, Volusia professionals and residents, to fully participate in the development and utilization of the Healthy Volusia Report. We look forward to partnering with you to provide better data and information to address the public health issues of our community!

## Report Card

Objectives	Volusia (2012)	FL (2012)	US (2012)	Healthy People 2020 Target
Increase the percentage of 2 year old children fully immunized	83.3 <sup>5</sup>	86.1 <sup>5</sup>	N/A	N/A
Reduce the percentage of low birth weight (LBW) births	7.8 <sup>7</sup>	8.6 <sup>7</sup>	8.2	7.8
Reduce the rate of all infant deaths before 1 year (per 1,000 live births)	3.8	6.0	6.05	6.0
Reduce the proportion of adults with hypertension	34.6 <sup>6</sup> (2010)	34.3 <sup>6</sup> (2010)	N/A	26.9
Reduce coronary heart disease deaths (age-adjusted per 100,000 population)	112.7 <sup>6</sup>	103.5 <sup>6</sup>	179.1	100.8
Reduce the rate of stroke deaths (age-adjusted per 100,000 population)	36.0 <sup>7</sup>	30.3 <sup>7</sup>	42.2	33.8
Reduce the percentage of adults who are obese or overweight	65.6 <sup>6</sup> (2010)	65.0 <sup>6</sup> (2010)	35.7 (2010)	30.5
Decrease the percentage of adults diagnosed with diabetes	13.5 <sup>6</sup> (2010)	10.4 <sup>6</sup> (2010)	11.3 <sup>8</sup>	N/A
Reduce the rate of HIV transmission among adolescents and adults	13.6	27.2	18.8	3.5
Reduce the rate of death from HIV infection (age-adjusted per 100,000 population)	4.1	5.0	N/A	3.3
Reduce death rate for cancer (age-adjusted per 100,000 population)	182.3	160.3	176.4 <sup>9</sup>	160.6
Reduce the death rate for Alzheimer's disease (age-adjusted per 100,000 population)	22.7	15.6	38.7	N/A
Decrease the percentage of adults who smoke cigarettes	23.3 <sup>6</sup> (2010)	17.1 <sup>6</sup> (2010)	19.0	12.0
Reduce the use of cigarettes by adolescents (percent who smoked in the past month)	8.3	6.1	N/A	16.0
Reduce the proportion of persons engaging in binge drinking of alcoholic beverages	14.1 <sup>6</sup> (2010)	15.0 <sup>6</sup> (2010)	17.0	N/A
Reduce the rate of domestic violence	791.8 <sup>7</sup>	567.4 <sup>7</sup>	N/A	N/A
Reduce suicide rate (age-adjusted death per 100,00 population)	20.9 <sup>7</sup>	14.2 <sup>7</sup>	10.9 (2002)	10.2
Reduce the unintentional injuries death rate (age-adjusted per 100,00 population)	51.2	40.5	38.8	36.0
Reduce motor vehicle crash related death rate (age-adjusted death rate per 100,000 population)	15.5	12.1	14.4	12.4
Reduce rate of hospitalizations for asthma (age-adjusted per 10,000 population)	10.79	14.86	N/A	N/A

**NOTE:** N/A indicates the data are not available. The references for the Report Card data are listed on page 12. All data are 2012 unless otherwise indicated. The year in parentheses is the year of that specific indicator.

## Report Card Summary

by Nathalie Moise, MPH, DOH-Volusia

The report card provides a comparison between county, state and national data of chronic and infectious diseases and related risk factors with specific benchmarks obtained from the Centers for Disease Control and Prevention's (CDC) Healthy People 2020 (HP2020) initiative. The age-adjusted death rates are based on the 2000 U.S. standard population and are useful when comparing diverse populations as they remove potential bias due to differences in residents' age. The Healthy People 2020 objectives and benchmarks are national standards that facilitate comparisons between groups that differ in population characteristics and geographic boundaries. The report card shows residents' health in comparison to Florida, the nation and the HP2020 recommended health targets.

Obesity, a major concern in public health, increases the risk of hypertension, diabetes, heart disease and a number of other health conditions. Obesity has also been a burden on Volusia County and Florida residents; their rates for adult obesity are 65.6 and 65.0, respectively. Both rates are 82 percent higher than the national rate, 35.7, and more than double the HP2020 target, 30.5. Healthy Volusia, a group of county residents and health professionals, has identified obesity as the top priority to address in our community.

Diabetes is ranked among the county's top 10 leading causes of death; the rate of diabetes-diagnosed patients in Volusia County is 13.5 as compared to 10.4 for Florida. However, this represents only a portion of the issue. Mortality statistics alone understate the impact of diabetes given the number of people unaware they are living with diabetes and other diabetes-related illnesses.

Volusia County is more adversely impacted by cardiovascular health than the state, but has a lower rate than the national rate. The 2012 death rate for coronary heart disease places Volusia County residents at 112.7 per 100,000 persons, higher than the state of Florida (103.5) and lower than the nation (179.1). Similarly, the age-adjusted death rate for strokes in Volusia County (36.0) is higher than the age-adjusted death rate of the state (30.3) but better than the U.S. rate (42.2).

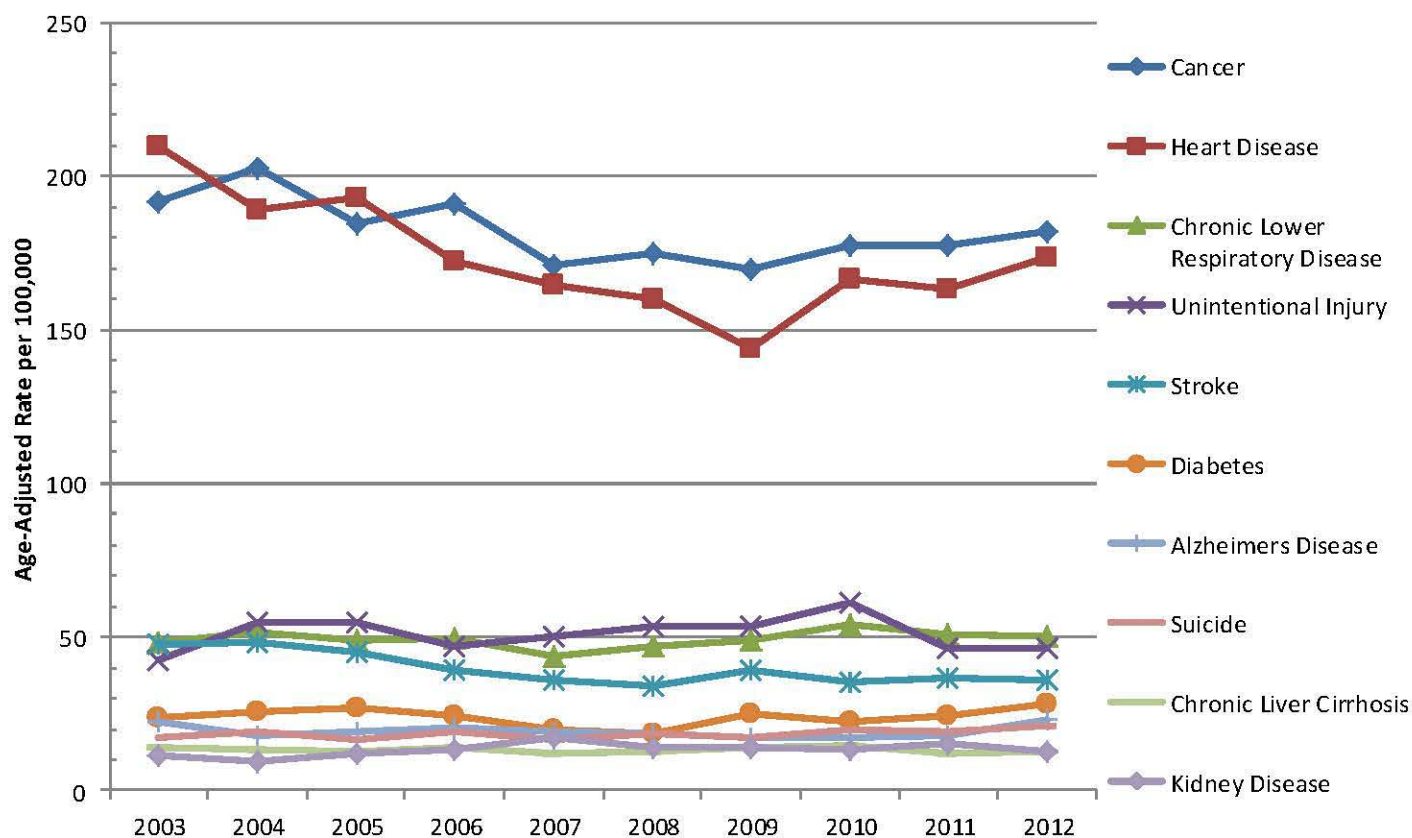
Cancer was the leading cause of death in Volusia County in 2012. The age-adjusted death rate for cancer in Volusia County (182.3) is greater than the state rate (160.4) and the national rate (176.4). Cigarette use among adolescents in Volusia County is 8.3 percent compared to 6.1 percent in Florida. Similarly, the proportion of adult smokers in Volusia County (23.3) is higher than the proportion in the state of Florida (17.2) and also higher than that of the nation (19.0).

In 2010, the CDC reported injuries as the leading cause of death for Americans ages 1 to 44 years<sup>12</sup>. Accidental deaths are a point of interest for county residents given Volusia's Speedweek events, Bike Week and outdoor recreational activities. The death rate for unintentional injuries in Volusia (51.2) is 26 percent higher than the Florida unintentional injuries death rate, 32 percent higher than the U.S. rate and 42 percent higher than the HP2020 target. Volusia County's death rate for motor vehicle crashes (15.5) exceeds the state and nation's rates but the good news is Florida's rate (12.1) is lower than the HP2020 recommended rate (12.4).

Alzheimer's disease and its consequences are becoming more common place for many families as the baby boomer population gets older. The CDC reports estimates of up to 5.1 million Americans aged 65 years and older with Alzheimer's disease and predictions of estimates to double by 2050<sup>13</sup>. The age-adjusted death rate for Alzheimer's disease in Volusia (22.7) is 1.4 times higher than the age-adjusted death rate in Florida (15.6) but lower the national rate of 38.7.

## Volusia County Leading Causes of Death, 2003-2012

by Nathalie Moise, MPH, DOH-Volusia



Source: Florida Department of Health, Bureau of Vital Statistics 2012

Cancer and heart disease have contested for the leading cause of death in Volusia County over the past ten years with cancer having the highest age-adjusted death rate since 2006. Heart disease ranked as the second cause of mortality in Volusia for seven consecutive years.

In the past decade, deaths related to unintentional injuries have been the third leading cause of death in Volusia County with a peak of 61.1 deaths in 2010. However, unintentional injuries deaths have shown a steep decline since 2010 with a 20 percent change (-20%) decrease from 2010 to 2012.

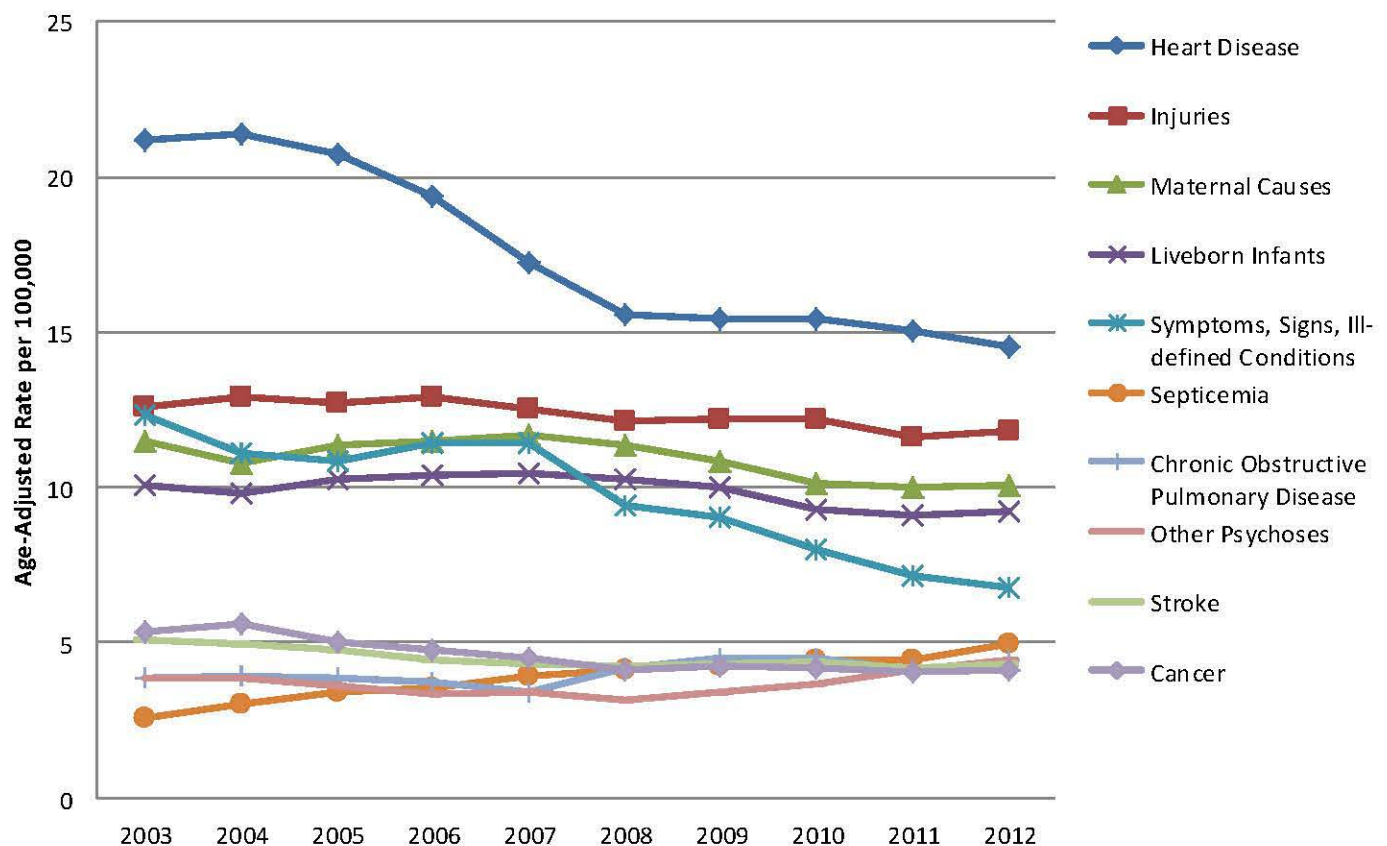
Chronic lower respiratory disease and stroke, another form of cardiovascular disease, were the fourth and fifth leading causes of death in Volusia County. Diabetes, a major public health concern, was the 6<sup>th</sup> leading cause of death in the county and was at its highest rate in 2012 over the past decade.

Mortality due to Alzheimer's disease peaked in 2012, making Alzheimer's the 7<sup>th</sup> leading cause of death in Volusia county. Alzheimer's incidence and mortality have increased in Florida; the change in Alzheimer's disease deaths from 2010 to 2012 represents a 39 percent increase. The age-adjusted death rate for Volusia County, 22.7 per 100,000 persons, is higher than the age-adjusted death rate for Florida, 15.6.

Suicide was at its highest in Volusia County in 2012 than it had been since 2003. There were 121 suicides in 2012, representing 34 percent increase from 2003 (90) and an 18.6 percent increase from in 2011 (102).

## Volusia County Leading Causes of Hospitalization, 2003-2012

by Nathalie Moise, MPH, DOH-Volusia



Source: Agency for Health Care Administration, 2012

Heart disease has been the leading cause of hospitalization for Volusia residents for the past decade. The mortality of heart disease only captures a portion of the health burden imposed by the disease. In 2012, heart disease was responsible for over 7,000 hospitalizations and 1,400 deaths in Volusia. Since 2008, the rate of heart disease hospitalizations in Volusia County has steadily declined.

County residents are hospitalized more frequently due to injuries than all other causes, except for heart disease. In 2006, Volusia County recorded its highest rate of hospitalization related to injuries and the rate has remained fairly uniform since. Maternal causes and live born infant hospitalizations are the 3<sup>rd</sup> and 4<sup>th</sup> leading causes of hospitalization, respectively. Both indicators have varied over time at a similar rate of change; the county saw its peak for both indicators in the same year, 2008.

Hospitalizations due to ill-defined conditions have dramatically declined by approximately 42 percent from 2007 to 2012. Ill-defined conditions are cases for which no specific diagnosis can be made after all the facts have been investigated.

The rates for the remaining causes of hospitalizations were closely grouped from 2003 through 2012. Septicemia, a serious bloodstream infection that can rapidly become fatal, is the 6<sup>th</sup> leading cause of hospitalization and has doubled from 2003 to 2012. Hospitalizations due to chronic obstructive pulmonary diseases peaked in 2012, a 23 percent increase since 2003. Similar to septicemia, hospitalizations due to “Other Psychoses” have doubled in Volusia County since 2003.

Monitoring health status to identify and solve community health problems is the first of the 10 Essential Public Health Services<sup>1</sup>.

Analyzing county specific health and demographic data affords insight into the health of the residents. It also enables public health officials to compare local health to that of the nation, state and other counties. While such comparisons are invaluable in assessing the county's health, it fails to account for geographic differences within the county that might reveal variances in race, age, gender, income, culture and other determinants of health. Analysis at the county level does not take full advantage of the potential richness of data within the borders of Volusia County.

Zip codes and census tracts are the most familiar sub-county geographic units. These are standard measures used throughout the country allowing for comparisons within and between states and counties. Cities also provide an opportunity for sub-county analysis and include a wealth of data. However, each unit of analysis has limitations. Cities exclude rural areas, small towns and unincorporated places leaving a significant number of residents out of the analysis. Zip codes and census tracts can be statistically unreliable when examining events that occur infrequently in the population. Zip codes and census tracts are susceptible to issues of confidentiality and privacy when analyzing disease or events with small numbers. It is possible to identify a family member with HIV/AIDS if they are the only person in the zip code with the disease. The smaller the geographic unit or the population, the more likely people can be identified.<sup>2</sup>

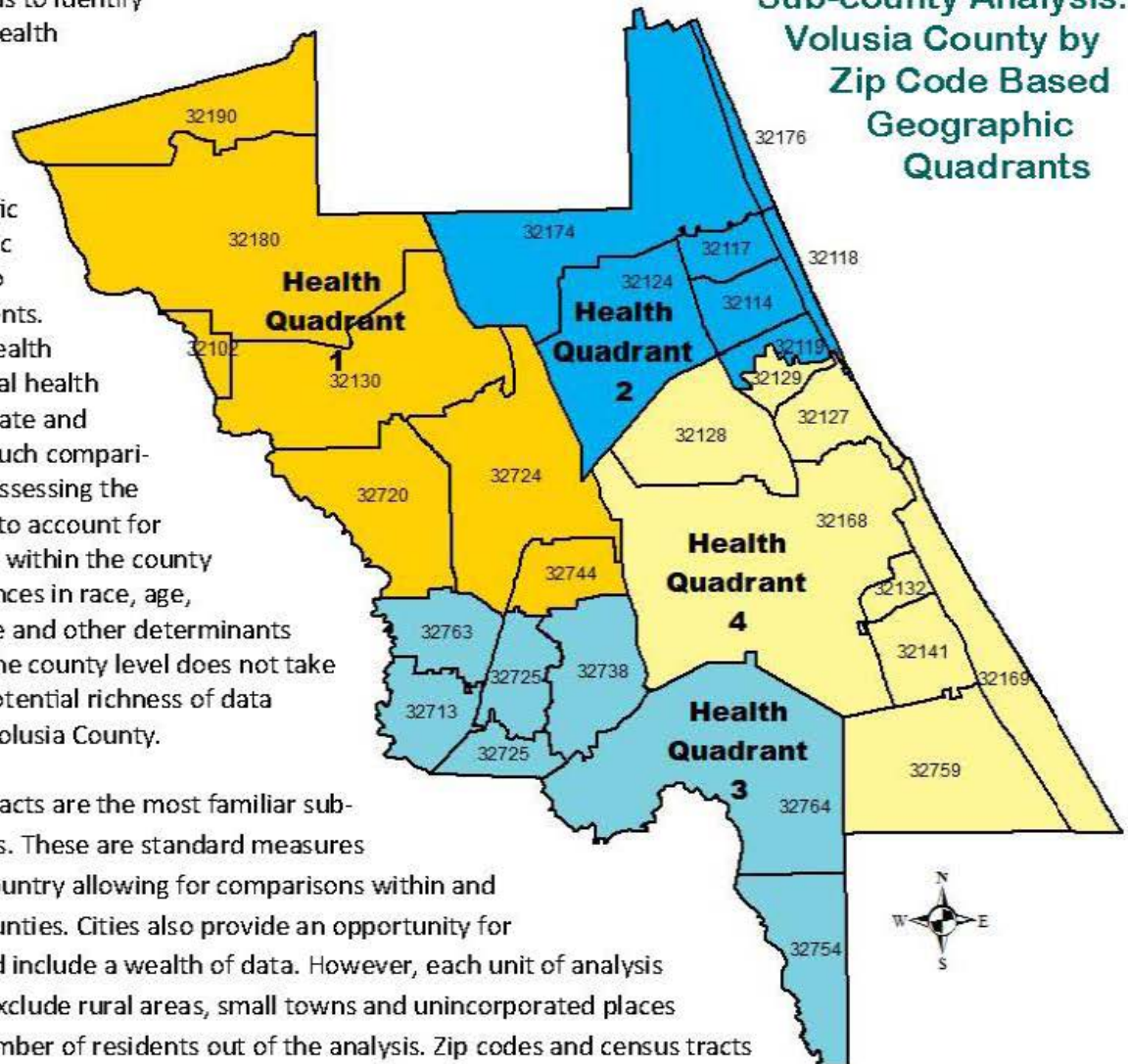
Zip code based quadrants, as presented in the map above, offer an alternative that addresses the issues of small numbers. The quadrants follow the natural east and west boundary established by the Tiger Bay State Forest. The east and west Volusia zip codes were then grouped into quadrants based upon historical communities and geographic divisions. The health quadrants (HQ) are of sufficient sizes such that, for the majority of events, they provide adequate numbers for reliable data while allowing a more geographically specific analysis. This will enable providers to direct their interventions to areas where the greater need exists. A combination of geographic units, quadrants and zip codes will be used to provide the best representation of the county data. The purpose is to gain the greatest amount of information from the data for the greatest benefit to the Volusia community.

#### References:

<sup>1</sup> <http://www.cdc.gov/nphpsp/essentialservices.html>

<sup>2</sup> Remo RC, Bryant T, Harmon RG. Trends in Public Health: Sub - county Data Analysis in Public Health. *Northeast Florida Medicine*, 2010, Vol. 61 (4).

### Sub-county Analysis: Volusia County by Zip Code Based Geographic Quadrants



## Volusia Health Quadrant Demographics

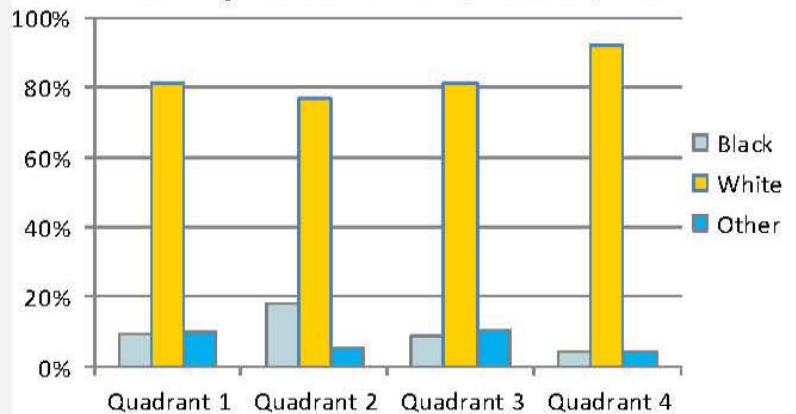
The US Census' American Community Survey (ACS) provides 2012 population estimates delineating the demographic characteristics of Volusia County residents. Assessing the data by zip code based geographic quadrants reveals variations in those demographic characteristics.

Quadrant 2 had the greatest percentage of African Americans, 18%, and Quadrant 4 has the lowest percent, 4%; both differed from Volusia County, 10%. Although white Volusians comprise 83% of the county, this population ranges from 77% to 92% by quadrant. Similarly, Hispanics are 11% of the county population but vary by quadrant from 3% in Quadrant 4 to 14% in Quadrant 1.

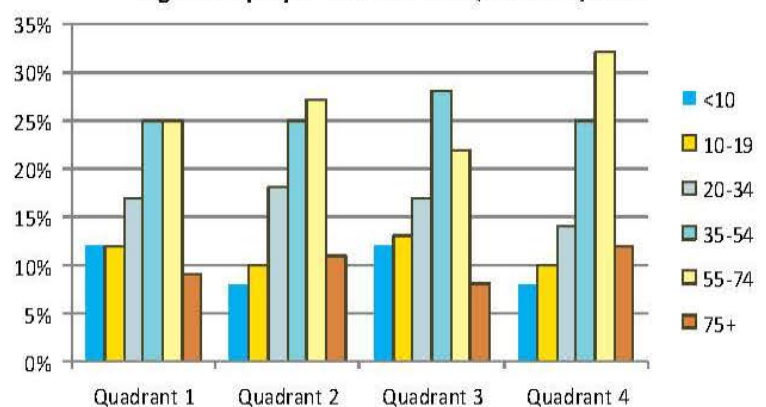
The 2012 ACS indicates approximately 15% of Volusians live in poverty. Assessing the data by quadrants discloses that half of the quadrants fall above the county rate and half below it.

The variations discussed above and displayed in the graphs document geographic differences in populations. These populations experience disease differently and understanding where disease occurs assists in the distribution of valuable resources.

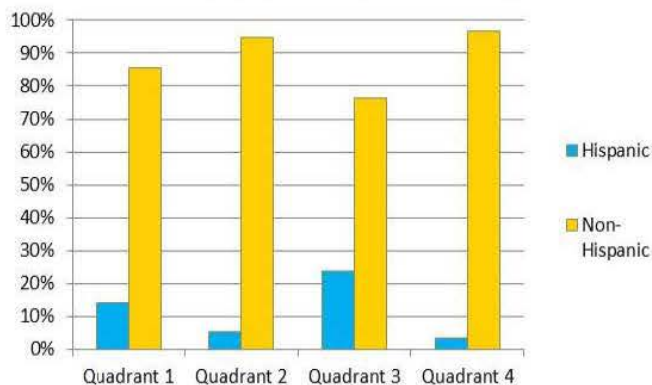
**Race by Volusia Health Quadrants, 2012**



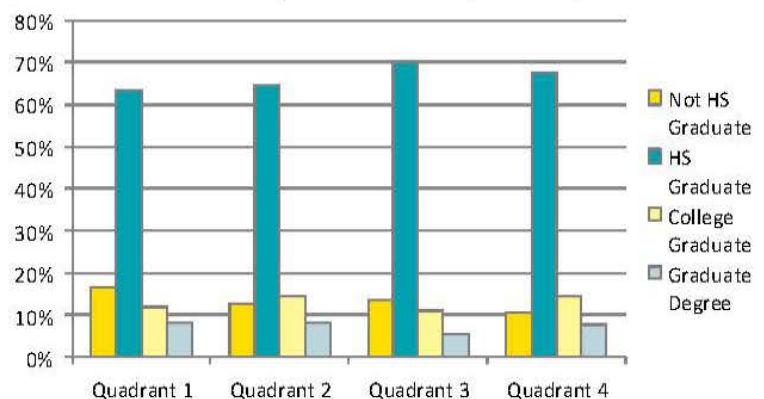
**Age Group by Volusia Health Quadrants, 2012**



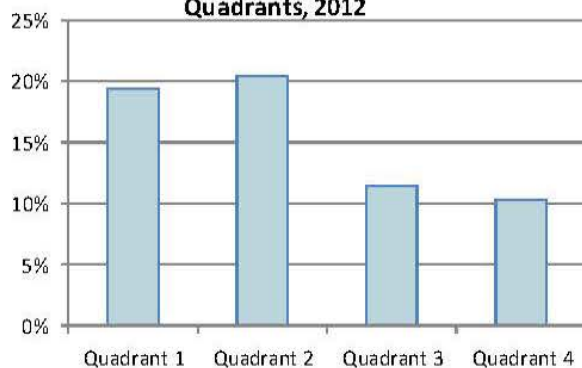
**Ethnicity by Quadrants, Volusia County 2012**



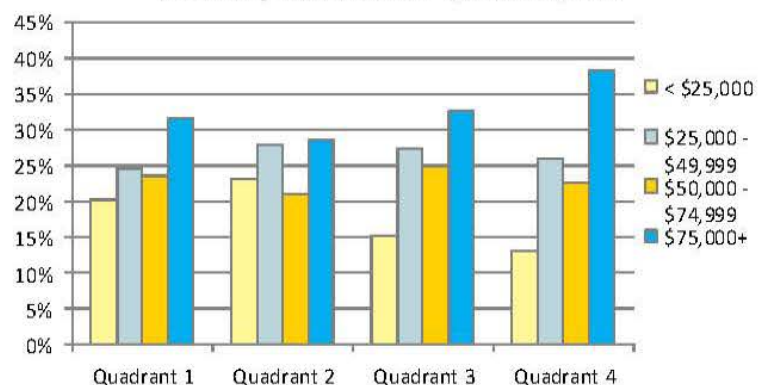
**Education by Volusia Health Quadrants, 2012**



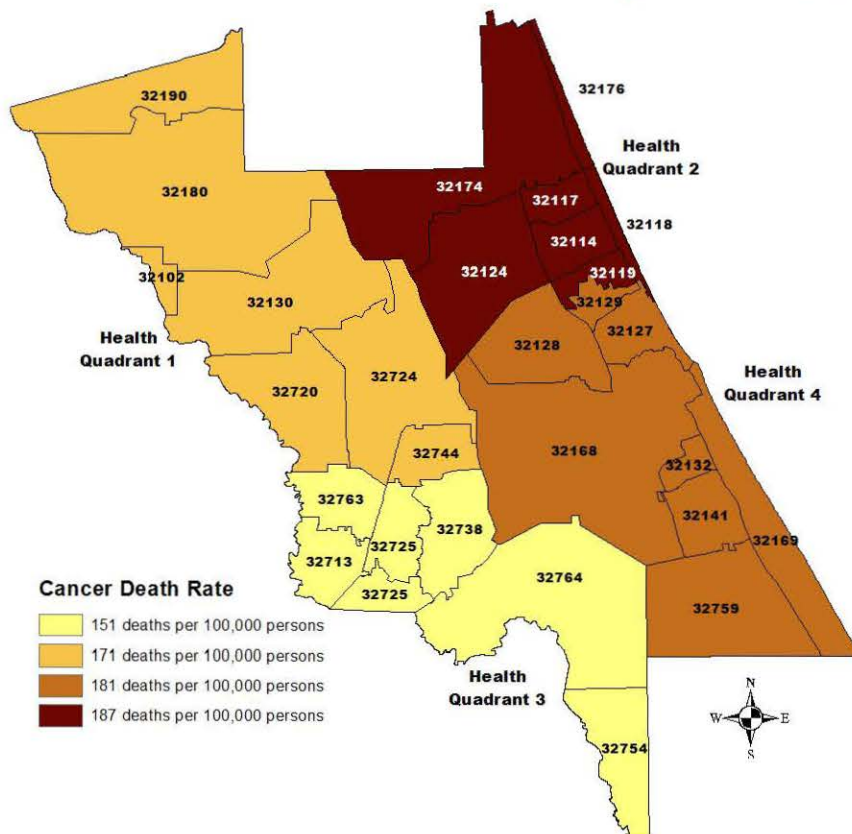
**Percent in Poverty by Volusia Health Quadrants, 2012**



**Income by Volusia Health Quadrants, 2012**



## Rate of Cancer and Coronary Heart Disease Deaths by Volusia County Health Quadrants, 2012



### Rate of Cancer Deaths per 100,000 persons in Volusia County, 2012

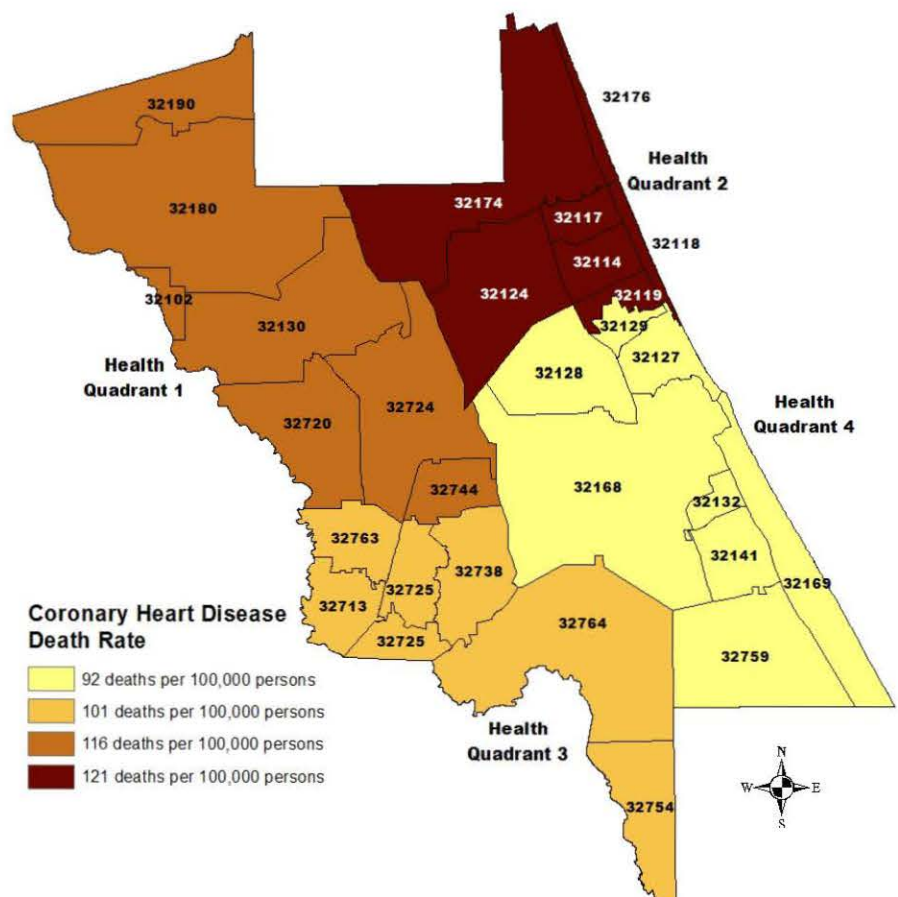
- The age-adjusted death rate for cancer in Volusia County was 182.3 deaths per 100,000 persons in 2012
- Quadrant 2 had the highest rate of death for cancer in 2012
- Quadrant 2 also had the highest rate of death per 100,000 persons in 2012 for heart disease, stroke and diabetes
- Healthy People 2020 target is 160.6 deaths per 100,000 persons

Source: Florida Department of Health, Bureau of Vital Statistics, Death files, 2012

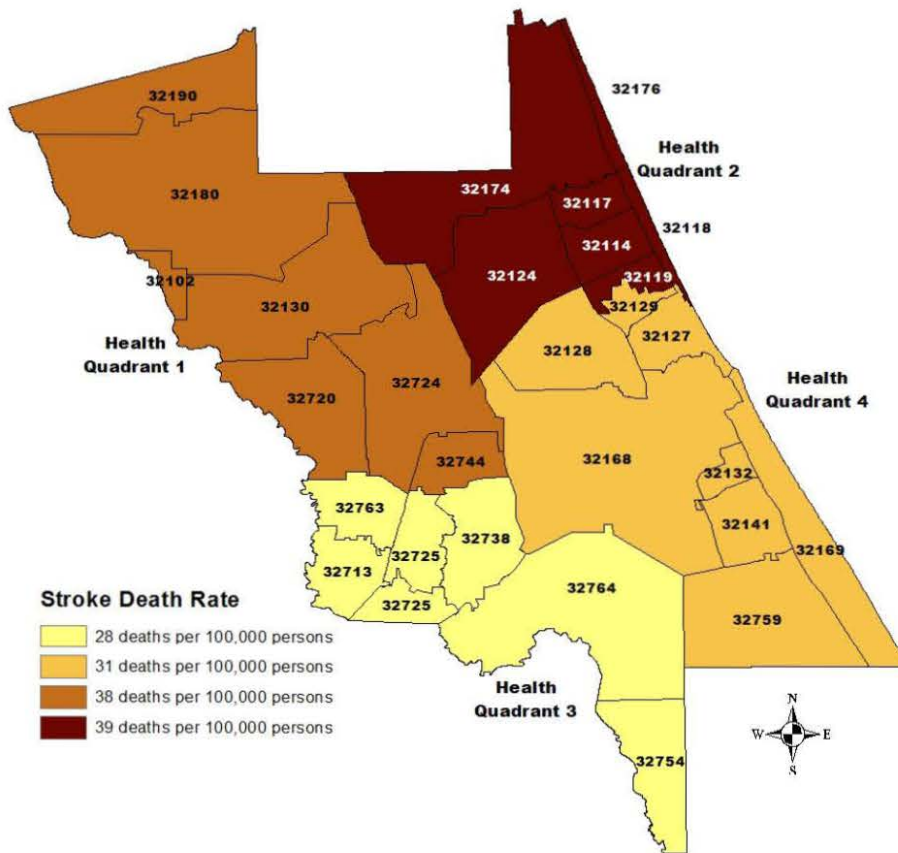
### Rate of Coronary Heart Disease Deaths per 100,000 persons in Volusia County, 2012

- The age-adjusted death rate for coronary heart disease in Volusia County was 112.7 deaths per 100,000 persons in 2012
- Quadrant 2 had the highest rate of deaths for coronary heart disease in 2012
- Quadrant 2 also had the highest rate of death per 100,000 persons in 2012 for cancer, stroke and diabetes deaths
- Healthy People 2020 target is 100.8 deaths per 100,000 persons

Source: Florida Department of Health, Bureau of Vital Statistics, Death files, 2012



## Rate of Stroke and Diabetes Deaths by Volusia County Health Quadrants, 2012



### Rate of Stroke Deaths per 100,000 persons in Volusia County, 2012

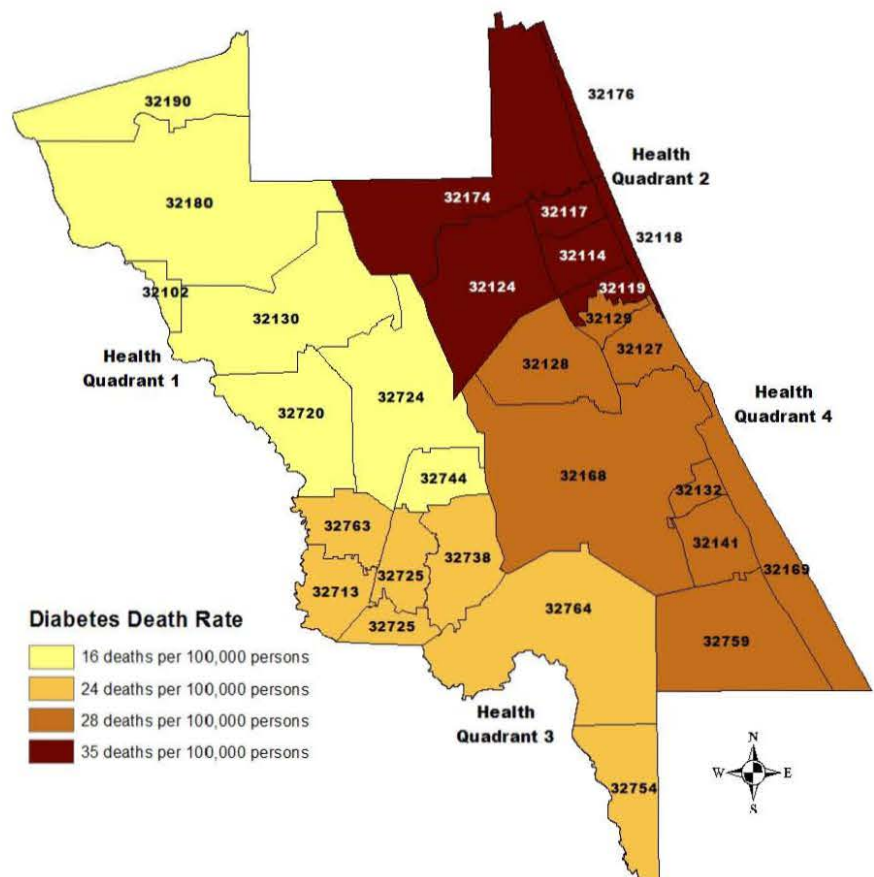
- The age-adjusted death rate for strokes in Volusia County was 36.0 deaths per 100,000 persons in 2012
- Quadrant 2 had the highest rate of death for strokes in 2012
- Quadrant 2 also had the highest rate of death per 100,000 persons in 2012 for cancer, heart disease and diabetes
- Healthy People 2020 target is 33.8 deaths per 100,000 persons

Source: Florida Department of Health, Bureau of Vital Statistics, Death files, 2012

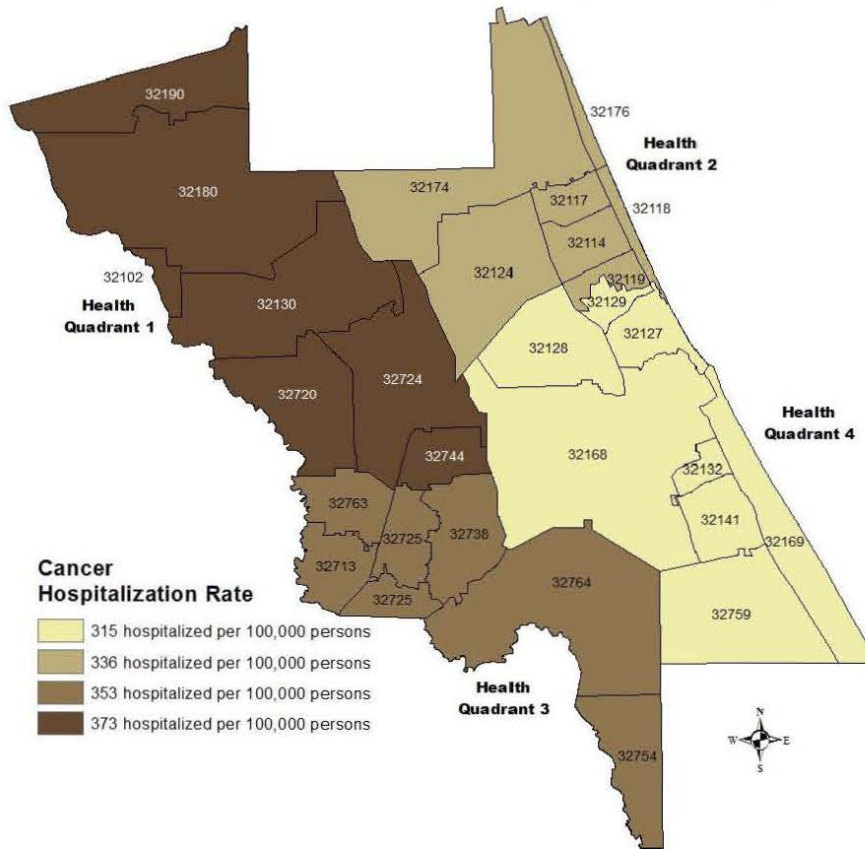
### Rate of Diabetes Deaths per 100,000 persons in Volusia County, 2012

- The age-adjusted death rate for diabetes in Volusia County was 28.4 deaths per 100,000 persons in 2012
- Quadrant 2 had the highest rate of diabetes deaths in 2012
- Quadrant 2 also had the highest rate of death per 100,000 persons in 2012 for cancer, heart disease and stroke
- Healthy People 2020 target is 65.8 deaths per 100,000 persons

Source: Florida Department of Health, Bureau of Vital Statistics, Death files, 2012



## Rate of Cancer and Coronary Heart Disease Hospitalization by Volusia County Health Quadrants, 2012



### Rate of Cancer Hospitalizations per 100,000 persons in Volusia County, 2012

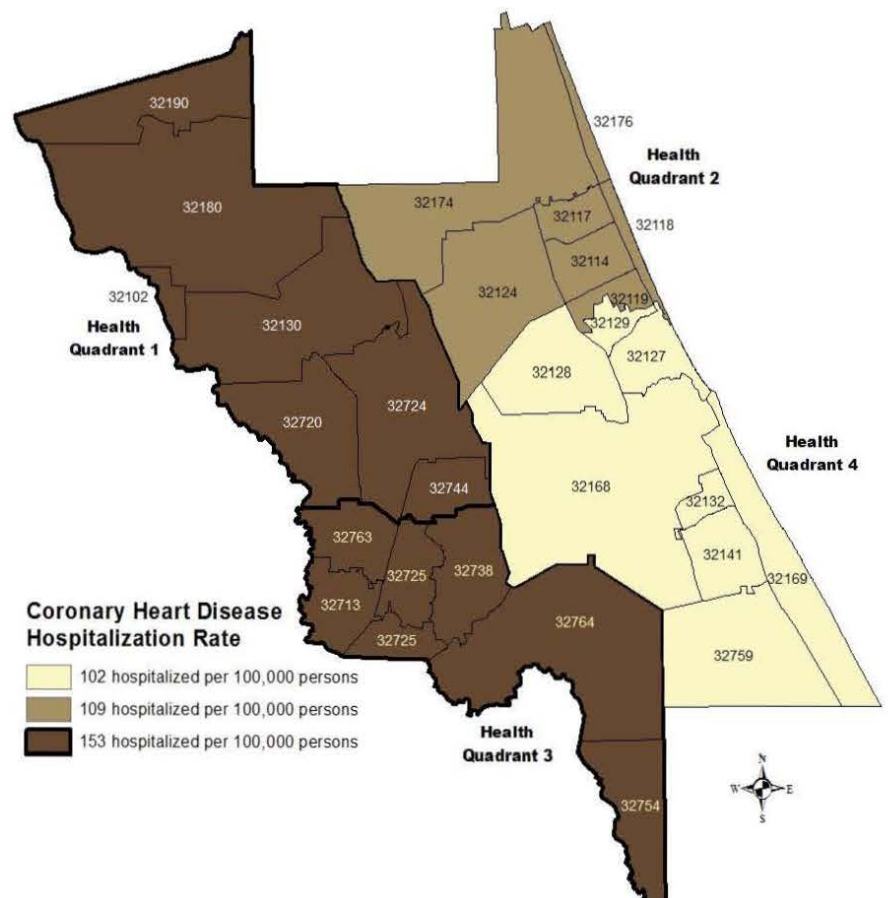
- The age-adjusted rate of cancer hospitalizations for Volusia County was 339 per 100,000 persons in 2012
- Quadrant 1 had the highest rate of hospitalizations for cancer in 2012
- There was an average difference of 19.3 persons between each quadrant
- Quadrant 4 also had the lowest rate for coronary heart disease, diabetes and stroke

Source: Florida Agency for Health Care Administration, Hospital Dataset, 2012

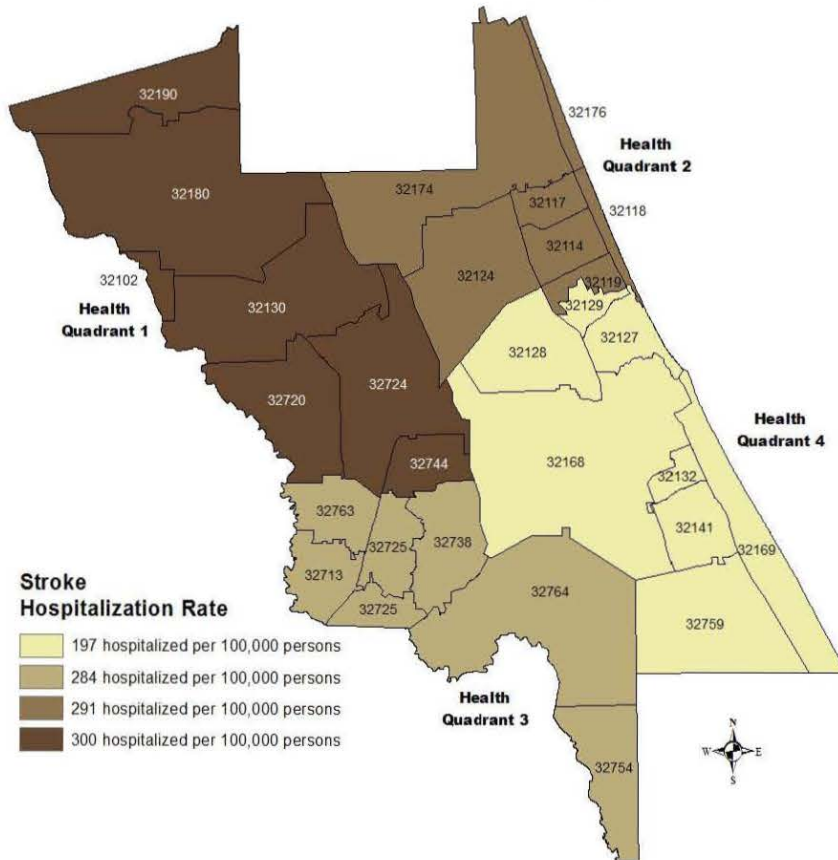
### Rate of Coronary Heart Disease Hospitalizations per 100,000 persons in Volusia County, 2012

- The age-adjusted rate of hospitalizations for coronary heart disease (CHD) in Volusia County was 123 per 100,000 persons in 2012
- Quadrants 1 and 3 had the highest and same rate of hospitalizations for coronary heart disease in 2012
- Quadrant 4 also had the lowest rate for cancer, diabetes and stroke

Source: Florida Agency for Health Care Administration, Hospital Dataset, 2012



## Rate of Stroke and Diabetes Hospitalization by Volusia County Health Quadrants, 2012



### Rate of Stroke Hospitalizations per 100,000 persons in Volusia County, 2012

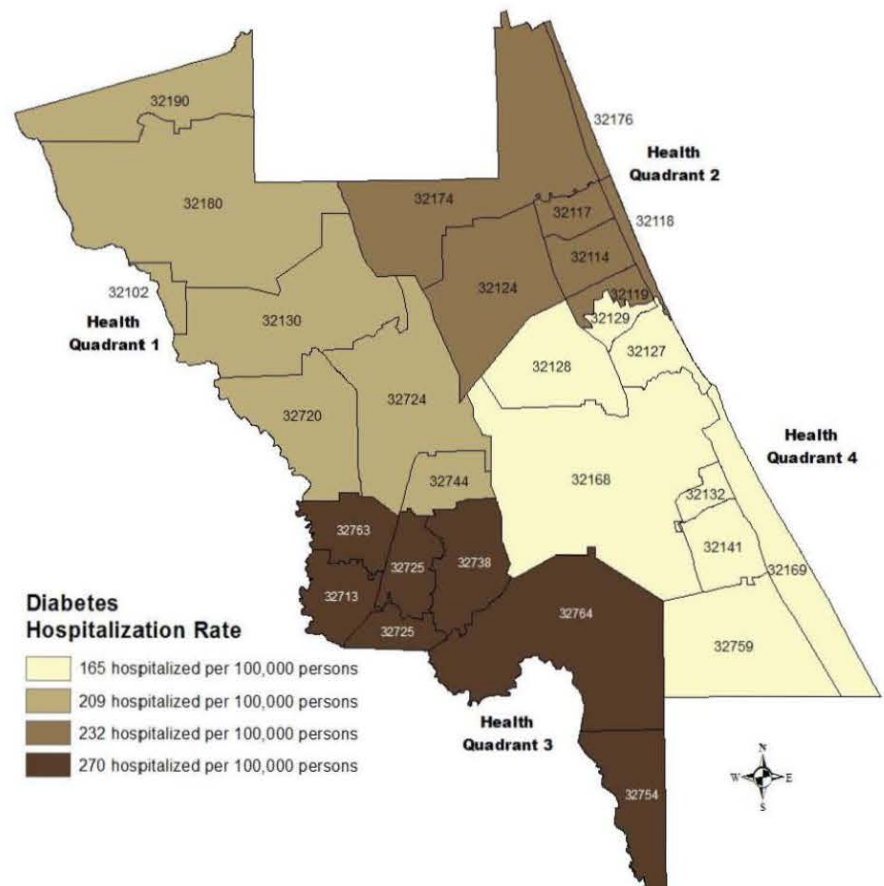
- The age-adjusted rate of stroke hospitalizations for Volusia County was 265 per 100,000 persons in 2012
- Quadrant 1 had the highest rate of hospitalizations for stroke in 2012
- Quadrant 4 had a notably lower rate than the next lowest rate for stroke hospitalization
- Quadrant 4 also had the lowest rate for cancer, coronary heart disease and diabetes

Source: Florida Agency for Health Care Administration, Hospital Dataset, 2012

### Rate of Diabetes Hospitalizations per 100,000 persons in Volusia County, 2012

- The age-adjusted rate of diabetes hospitalizations for Volusia County was 193 per 100,000 persons in 2012
- Quadrant 3 had the highest rate of hospitalizations for diabetes in 2012
- Diabetes hospitalizations recorded the highest difference between the lowest and highest rates, 105 persons, of the four diseases examined here
- Quadrant 4 also had the lowest rate for cancer, coronary heart disease and stroke

Source: Florida Agency for Health Care Administration, Hospital Dataset, 2012

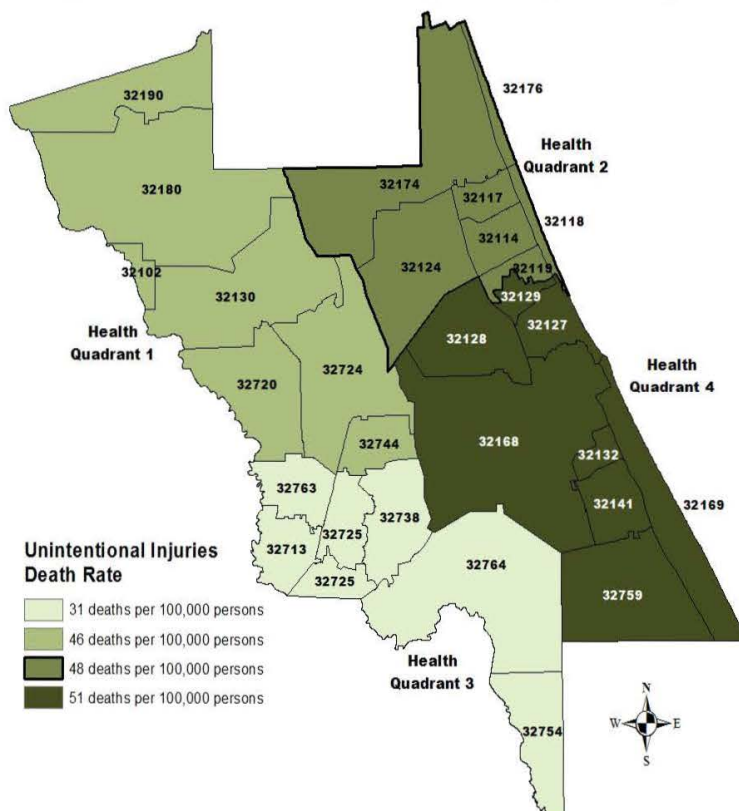


## Healthy Volusia Report Key Points

- Volusia's suicide rate, 20.9 per 100,000 persons, is almost twice the U.S. suicide rate of 10.9 and 47% higher than Florida's suicide rate, 14.2
- Coronary heart disease is the leading cause of hospitalization and deaths in Volusia County over the past 10 years
- The adult obesity rate for Volusia County (65.6 per 100,000 persons) is 84% higher than the U.S. adult obesity rate (35.7) and 115% higher than the target rate (30.5) recommended by the Center's for Disease Control and Prevention (CDC) Healthy People 2020 initiative
- Health Quadrant 4 consistently has the lowest rates of hospitalization for cancer, coronary heart disease, diabetes and stroke
- Health Quadrant 2, which has the highest African American population, has the highest death rates for cancer, coronary heart disease, diabetes and stroke than all other health quadrants
- Health Quadrant 4 has the highest rate of deaths resulting from unintentional injuries (falls, motor vehicle crashes, drowning, exposure to smoke fire or flames, etc.) than all other health quadrants

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**Rate of Death by Unintentional Injuries per 100,000 Persons in Volusia County Health Quadrants, 2012**



### References for the Report Card....continued from page 2

- <sup>1</sup>Florida Community Health Assessment Resource Tool Set
- <sup>2</sup>Florida Department of Health, Bureau of Vital Statistics (unless otherwise indicated)
- <sup>3</sup>National Center for Health Statistics, [www.CDC.gov/wonder](http://www.CDC.gov/wonder) (unless otherwise indicated)
- <sup>4</sup>National Vital Statistics Reports: Preliminary data for 2011
- <sup>5</sup>Florida Department of Health, Bureau of Immunization
- <sup>6</sup>Florida Behavioral Risk Factor Surveillance Telephone Survey, County-level
- <sup>7</sup>Florida Department of Health, Division of Public Health Statistics and Performance
- <sup>8</sup>Percentage reflects ages 20 or older
- <sup>9</sup>National Cancer Institute (rate is based on patients who died from cancer from 2006-2010)
- <sup>10</sup>Florida Department of Health, Division of STD Prevention & Control
- <sup>11</sup>This rate reflects the national rate of the STD infection among females of all age groups
- <sup>12</sup>Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control, Web-based Injury Statistics Query and Reporting System (WISQARS) [Internet]; 2010 Mar 4 [cited 2010 Apr 1]. Available from: <http://www.cdc.gov/ncipc/wisqars>
- <sup>13</sup>Herbert LE, Scherr PA, Bienias JL, et al. Alzheimer's disease in the US populations: Prevalence estimates using the 2000 census. Arch Neurol. 2003; 60:1119-22
- <sup>14</sup>Healthy People 2020, [www.healthypeople.gov](http://www.healthypeople.gov)

**NOTE:** Unintentional injury is defined as injury not intended as self-harm or as intentional harm to another person. The county rate is 51.2 deaths per 100,000 persons.